Users' Perceptions of Aesthetic Design Approach of Safavid Architecture, Iran

Bahram Shahedi
College of Architecture, Islamic Azad University (IAU) Isfahan Branch, Iran

Nila Inangda Manyam Keumala Hj. Daud
Department of Architecture, Faculty of Built Environment, University of Malaya, Kuala Lumpur, Malaysia

Naziaty Mohd Yaacob
Department of Architecture, Faculty of Built Environment, University of Malaya, Kuala Lumpur, Malaysia

In this study, the aesthetic design approach of architectural precedents of Safavid Architecture was examined based on users' perceptions, which were obtained by using perception questionnaire instrument. The research method included concurrent qualitative and quantitative analyses of data. Data analysis procedure was conducted through descriptive statistical analysis and by sorting thematic information for Initial categories, which were defined by the theoretical foundation. The researchers found that users' perceptions fell into two distinct groups. The first: structural honesty, expressions, identity, design feature, interaction as design values in the sense of aesthetic. The second: design principle, design concept, characteristic, minimalism, and style as an attribute. Such findings revealed how Safavid architectural concepts were aesthetically integrated into the diversity aspects of its architectural precedents.

Keywords: *Aesthetics, Architectural Precedents, Safavid Architecture, Design values, Attributes*

1. INTRODUCTION

Safavid Architecture is an important era in the evolution and history of Iranian architecture. The Safavid era began with the rise of Safavid dynasty that ruled Persian territory between the years of 1501-1722 (Yalman, 2000). Additionally, Safavid Architecture is recognized as the best-known example, in which some of the rich monumental architectural precedents have demonstrated an aesthetical contribution to the heritage of the nation's cultural identity (Eimen, 2004).

Despite the rich existence of aesthetic design ideas in the Persian architectural precedents, concepts of design in contemporary Iranian architecture are preoccupied with its aesthetic design criteria of doubtful origins from either the West or Persian tradition (Eimen, 2004). One major theoretical issue that has dominated Iranian architecture concerns with disregarding the signature of historical architectural precedents (Naderi, 1996).

Architectural precedents are testing and placing the architecture aesthetically in the cultural and environmental contexts to discover their reflection on the social and cultural aspect of the particular period in the technology of time (Elwee, 1996). The architectural precedents accumulate many aspects of aesthetic that are different from one region to another. Architectural style should be an honest result and expression of its time, and that it should reflect the current climate, customs, and religion of a country (Brolin, 2000). The aesthetic design in the context of time, was understood as a "system of thought in which the past understood as a series of periods, each distinct from each other and the present" (Tilman, 2005).

The importance of an aesthetic design process from the architectural precedents to contemporary architecture demonstrated an obvious connection between general and particular design values. These values are particular design variables, which emerge as the resulted of society reflection on the distinctive design of practitioners in different epochs (Birkeland, 2002, pp. 114-117).

Given the significance of the general feature and application of architectural precedents, this research intends to explore the aesthetic design

approach of Safavid Architecture by examining the Safavid architectural buildings through users' perception to obtain the potential aesthetic design concepts that are relevant to the contemporary Iranian architecture. The research questions are therefore: 1.How do the users of Safavid Architecture perceive the aesthetic design approach of Safavid Architecture in relation to contemporary Iranian architecture? 2. How does the aesthetic design approach of Safavid Architecture as a historical precedent contributes to the aesthetic of contemporary Iranian architecture?

2. CONCEPTUAL FRAMEWORK

Concepts of the aesthetic design approach and emotional evidence of theoretical foundation will pave the way for defining appropriate concepts to explore. These concepts are not considered as the rules but as a supportive device, suggesting guidance to the research and are identifying some pre-defined categories in the account of theoretical foundation to advance for further investigation from user perception in the aesthetic design approach of Safavid Architecture and its application to the contemporary architecture (Tables 1 & 2).

The underlying structure of the conceptual framework for this research is to define the key elements and their relationship which consist of the aesthetic design of Safavid Architecture as relate to architectural precedents, and contemporary Iranian architecture as related to contemporary architecture (Figure 1).

These concepts have specific relationships and interdependencies to guide the research inquiry in accordance with some key concepts, which have been obtained inductively through the theoretical foundation

3. METHODS

The exploratory and explanatory nature of setting the line of how-question has linked the research to the case studies strategy design (Tellis, 1997). This strategy made it possible to obtain the users' perception, beliefs, points-of-views, and relationships, and focused to learn the meaning that users brought up about the situation under investigation (Creswell, 2009, pp. 8,175). The cases, which provided rich and diverse evidence in this research, were as follows: 1. Khaju Bridge, 2. Madrassa Chahar Bagh, and 3. Hotel Abbasi (Figure 2).

Sampling: A purposeful random sampling of 150 users (n = 150) was adopted to add more credibility due to the large samples that one could handle (Laframboise & Shea, 2009). Purposive sampling aims to reflect the full range of respondent characteristics and diversity of users' perceptions. As the result of this approach the researchers used smaller samples so that issues can be explored sufficiently in depth to allow a full exploration of phenomena identified and explored (Mowlam, Tennant, Dixon, & McCreadie, 2007 & McCreadie, 2007, p. 10).

Samples' Characteristics: The backgrounds of the users varied as follows: Fifty-five percent of the users were male, and forty-five percent were female. More than sixty-four percent had a university education, diploma degree (35percent) and guidance school (2 percent). In terms of age groups, 18 percent were above ages of 50 and 19 percent were between ages of 40 and 49, and another 30 percent were between ages of 30 and 39, and the rest was between ages of 18 to 29 (33 percent).

Data Collection: A mix method approach to data collection was utilized to compile qualitative and quantitative data through single instrument from the users of the three cases (see Figure 2). The users were given the questionnaires with a total of 10 key targets based on theoretical foundation using 5-Point rating agreement Likert scale from strongly agree to disagree. The questionnaire approach is used because it will explore the consistency of results from the qualitative and quantitative techniques by the means of triangulation and allows the researchers to be more confident of the study's conclusions (Jick, 1979).

Data Analysis: The data analyzed exploratory, using descriptive analysis calculation for each response category in two separate modes, quantitative and qualitative. In the qualitative part, the basic knowledge of architectural users was obtained through users' information as a useful primary feedback for sorting information and identifying perception, feeling and issues of their concern (Herman, 2009). In quantitative part, descriptive statistics analyze SPSS were used to profile users. Each item was calculated using mean value of items that exhibited acceptable reliability. The investigation of key concepts related to qualitative and quantitative was evaluated across the rating of explanations of users and presented as an integrated discussion (Dooley, 2002).

4. RESULTS

In order to establish the reliability of questionnaire instruments (see Tarlton & Ward,

2006), the key concepts and feedback from users from a pilot test were first classified. It was revealed that some of the items were tangible to users as an expression of meaning, defining content (attribute), whereas others were intangible (design values) as design, idea, principle, and concept, i.e. referring to subjective and explaining content.

Then, the quantitative analysis was conducted on the users' perceptions of Safavid Architecture by starting with the description analysis followed by the mean and the group analysis of the items to explore users' reality of what they perceived regarding the aesthetics design approach to the Safavid Architecture (Table 3). For the response category, 'strongly agree', the highest frequency was for the 'design principle' (62.8%, n= 94) followed by 'design concept' (53.3%, n= 80), 'regionalism and identity' (52.8%, n= 79), 'structural honesty' (46.7%, n= 70), 'expressions' (45.6%, n= 68), 'character' (45%, n= 68), 'design feature' (36.7%, n= 55) 'style' (29.4%, n= 44), 'interaction' (20%, n= 30), and 'minimalism' (12.2%, n= 18).
The results also showed that (48.9%, n=73) of the users agree with 'style'. Subsequently, the rating is followed by interaction (44.4%, n= 67), structural honesty and expressions (42.2%, n= 63), design feature (41.7%, n=62), character (40.6% n= 61), regionalism' (38.9%, n= 58), minimalism' (35%, n= 52), design concept and design principle (33.9%, n= 50,) as lowest frequency. In addition, Table 3, shows design Principle, regionalism, structure honesty, and design concept, were addressed by the users with the highest frequency in 'agree' and 'strongly agree' zone.

Additionally, mean analysis of items (Table 4) shows that 'design principle' (mean= 4.58, std= 0.61) received the highest mean score in the design 'attribute' (Intangible) items and 'regionalism' between the design 'values' (Intangible) received the highest mean score (mean= 4.43, std= 0.67) followed by the 'design concept' (mean= 4.38, std= 0.77), 'structure honesty' (mean= 4.34, std= 0.71), 'expressions' (mean= 4.30, std= 0.78), 'Character' (mean= 4.30, std= 0.72), 'design feature' (mean= 4.11, std= 0.77), 'style' (mean= 4.04, std= 0.72), 'interaction' (mean= 3.81, std= 0.79), and 'design minimalism', (mean= 3.51, std= 0.82) as the lowest mean score.
The result of mean analysis supports the result of descriptive analysis where overlay of 'design principle, regionalism, 'design concept', and 'structure honesty', received the highest score of perception in the strongly and very strongly zone.

Mean analysis of groups: In order to integrate people's opinions into relatively in the same meaning, the item was classified into two groups, i.e., attribute, and values, with internal consistency, alpha (α) above 0.7 as recommended by Nunnally (1978). From Table 5, five items were classified under the term of 'attribute' (tangible), and another half was grouped as 'values' (intangible) group.
Table 6 shows the mean score for 'design values' (mean= 4.20, std= 0.51) and 'attribute' (mean= 4.16, std= 0.51) groups. As the Table illustrates, mean scores for values are slightly bigger than attribute. It states that users perceive almost these two groups in the same level of perception. However, the overlay from descriptive and mean analysis concludes that; design principle and regionalism-identity were perceived highly and strongly by the users. In addition, 'design concept and structure honesty' were received the next highest perception by the users as important items of attribute and values in architecture.
The divergent users' perception in the above performance was synthesized to produce new relationships in the results and findings of the research's inquiry (Morgan, Lin, Chou, & Wu, 2006). This procedure resulted in a single unique combination of users of Safavid Architecture.
Descriptive analysis indicates that, there is a positive feeling to the level of users to the statements. The most perception of dimensions identified by the mixed results from users was the designed elements, principle, regionalism, identity, design concept, and structure honesty. Although other dimensions were not highlighted, they will be concerned in much the same way. The results also indicate that there are positive feelings about the dimension of design elements and principle of order in the Safavid Architecture. The high mean value of 4.58 with standard deviation 0.61 was highly concerned by 62.8 percent of users.
A dimension of design concept was identical in both users and stands in the third place with the mean value of 4.38. The next rank of the users' perception was identified by a mixed feeling of structural honesty, which is bonded to the humanistic, purity and true purpose of structure, function and material property. The results showed that users were more inclined to support this statement with 46.7 percent in the zone of strongly agreeing, and 42.2 percent in the zone of agree whereas 9. 4 percent of users were only moderate about the statement. Despite the clear

Table 1: The conceptual definitions of concepts and operational definitions to articulate depth of the study

CONCEPT	CONCEPTUAL DEFINITION OF CONCEPT	CHARACTERISTIC OF CASES (VARIABLE)	OPERATIONAL DEFINITION OF PRE-DEFINE CONCEPTS
Aesthetic	The word aesthetic in this study is use as the noun; and given another meaning for use of aesthetic which defined as "underlying Principle, a set of principle, a guiding principle about architecture in a matter of creative disciplinary in the process of design	Architectural Precedent, Aesthetic Design	10 items that assess Safavid Architecture through the users' perception

Table 2: Perceptional framework to assess Safavid Architecture through user perception

NO.	TARGETS ITEMS	PERCEPTION INDICATORS
1	Design Principle	Demonstrate sense of order in arrangement of architectural elements of its related times.
2	Characteristic	Express the humanistic approach to design and tradition of society.
3	Interaction	Develop relations between people and building, building and environment and vice versa.
4	Identity and Regionalism	Created regionalism and national identity
5	Design Minimalism	Present simplicity of form, geometry and surface treatment.
6	Expressions	Generated quality design expressions
7	Materials and Structural honesty	Bonded to humanistic, purity and true purpose of structure, function and material property
8	Design feature	Preserved the characteristics of its related times, as measure up to contemporary architecture
9	Style	Conserved design style of its related time, as contrast to contemporary architecture.
10	Design feature	Contribute to all aspects of design concept and process as a paradigm to Contemporary Iranian architecture.

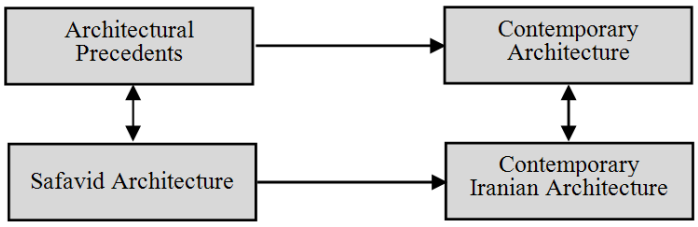

Figure 1: Conceptual Framework Diagram, Dependent and Independent concepts

concern that arises in responses to the questions, only1.7 percent of users cited no positive responses to the given statement. The obtained results from users by giving their mixed feelings about knowledge of humanism function and a material likely shows a new meaning to architectural representation of the Safavid Architecture. Further, an indication on architectural proportion, space, attention to detail, construction materials, and use of colors, which depict a harmonious and articulate structure of the city as a foundation to human society was highlighted.

5. QUALITATIVE RESULTS

The following themes are defined as the keyword's concepts in the sense of aesthetic design approach, emerged from the variables' measurement framework base on theoretical foundation in a qualitative manner and evaluated with conjunction to quantitative results. Numbers and percentages have not been given due to avoid from any given impression that the results can be projected to a population (Ernst, 2005).

1. Sense of order in arrangement of architectural elements: Users delivered a variety of responses to the statements in a different context of their inquiries. However, it was noticed that some of the users were not knowledgeable enough to give reasonable responses to the line of inquiry. With regards to visual elements, some of the users could recognize buildings or part of buildings from its outline, as in the case of Madrassa Chahar Bagh and Khaju Bridge with the strong definition of architectural edge.

2. Humanistic approach to design and tradition of society: Users referred to Safavid Architecture as characterized by two principles called 'Bron Gara (Outward) and Daron Gara' (Inward). In addition, they emphasized on Caravansary Abbasi, and Maddreseh Chahar Bagh as examples of Daron Gara (Inward), and Khaju Bridge as a case of Boron Gara (Outward) architecture. The responses of some users indicated that the aesthetic signature designs of the Safavid Architecture were references to the purity of traditional language of architecture.

3. Relations between people and building, building and surrounding: Caravansary Abbasi and Khaju Bridge were important to some users in making their judgments of a spacious social gathering place and as public location. The interaction within the context of the city between manmade architecture and nature in a case of Khaju Bridge was important to users considering their awareness of events and activities in public spaces along the bridge and Zayandeh rood river.

4. Created regional and national cultural identity: Users believed that Safavid Architecture is strongly depicting the cultural, social and national identity of society. The notion of a court yard was important to users in making their judgments of defining the place identity with culture and architectural means.

5. Simplicity of forms, geometry and surface: Some users who judged the physical characteristics of buildings explained that, rhythm repetitions are per dominant's features of the Safavid Architecture on building's façade. Some saw them to be a simple geometric relation defined on the surface as well as the interior to explore the idea of wholeness through simple forms and producing a new idea, aesthetic and constriction techniques of its related time.

6. Generate quality visual expression: Users who are using Safavid Architecture as a place of work, recreation and visitors of their daily life identified some key points to refer as their taste to tradition and cultural quality expression. Through the question and conversation with users, it was found that Safavid Architecture have a profound root in expressing its tradition, folk, custom and the ritual of progression of its related time in its buildings.

7. Humanistic, purity and true purpose of structure, function and material property: A majority of users were aware of the principle in Safavid architectural shape of a building as the primarily based upon its intended function or purpose. The similarity between buildings with different functional aspect and similar material purity were important to some participant as a sign of beauty from the character point of view to the entire heightens design in Safavid Architecture.

8. Potential as to measure up to contemporary architecture: Users who commented on the external and internal Safavid Architecture were shown more frequency compared with some users who justify the lack of information and awareness towards aesthetic design of Safavid Architecture. Users showed the different visions of understanding toward historical buildings. In the case of Safavid Architecture, they saw each building as a specific building which is purely functional to users' demands.

9. Design style of its related time as contrast to contemporary architecture: A majority of users believed that some similarities existed between building's forms and space as a typical set of pattern, which is identical in a number of different buildings. Those users, who judge the physical and spatial characteristic of Madrasa Chahar Bagh and Caravansary Abbasi, gave their explanation as a

1- Khaju Bridge 2- Madrassa Chahar Bagh 3- Hotel Abbasi

Figure 2: Case Study Sampling, Sources: From left to right,1- (Astley, 2006), 2- (Majdfar, 2005), 3- (Rogers, 1951)

Table 3: Integrating Descriptive analysis of items

No.	Items-Target	Strongly disagree		Disagree		Moderately		Agree		Strongly agree		Total
		n	%	n	%	n	%	n	%	n	%	n
Q1	design Principle	3	1.7	-	-	3	1.7	50	33.9	94	62.8	150
Q2	Characteristic	-	-	1	0.6	20	13.9	61	40.6	68	45	150
Q3	interaction	1	0.6	3	2.2	49	32.8	67	44.4	30	20	150
Q4	Regionalism - Identity	-	-	2	1.1	11	7.2	58	38.9	79	52.8	150
Q5	minimalism	1	0.6	12	7.8	67	44.4	52	35	18	12.2	150
Q6	expressions	2	1.1	2	1.1	15	10	63	42.2	68	45.6	150
Q7	structural honesty	-	-	3	1.7	14	9.4	63	42.2	70	46.7	150
Q8	design feature	-	-	2	1.1	31	20.6	62	41.7	55	36.7	150
Q9	style	1	0.6	4	2.8	28	18.3	73	48.9	44	29.4	150
Q10	design concept - Idea	2	1.1	-	-	18	11.7	50	33.9	80	53.3	150

Table 4: Mean analysis of items

Items - Target	Groups Classification	Mean	Std.dev
design Principle	Attribute	4.58	0.61
regionalism	Values	4.43	0.67
design concept	Attribute	4.38	0.77
structure honesty	Values	4.34	0.71
expressions	Values	4.30	0.78
character	Attribute	4.30	0.72
design feature	Values	4.11	0.77
style	Attribute	4.04	0.70
interaction	Values	3.81	0.79
design Minimalism	Attribute	3.51	0.82

Table 5: Classification of the items

Attribute (Intangible)		
Number	**Item-Target**	**Alpha**
1	design elements and principle	0.773
2	design minimalism	0.766
3	character	0.759
4	style	0.753
5	design concept	0.737
Total		**0.711**
Values (Tangible)		
Number	**Item-Target**	**Alpha**
1	structure honesty	0.666
2	interaction	0.645
3	regionalism	0.599
4	expressions	0.548
5	design feature	0.437

Table 6: Mean analysis of the groups

Item	Mean	Std.dev	Alpha (α)
Values (Intangible)	4.20	0.51	0.713
Attribute (Tangible)	4.16	0.51	0.711

pattern that looks quite similar, organized, using the same set of image and language.

10. Contribute to all aspects of design concepts and processes as a paradigm to contemporary architecture: A majority of users believed that the pattern of the Safavid Architecture as a model would influence the representation of architecture by introducing new perceptions of similar events to look at reality in a new method. One participant given an example of a building, which is under construction on Chahar Bagh Boulevard as a sample of defining its character and language based on the Safavid architectural features.

6. DISCUSSION OF RESULTS

The perception of user is found to be more perceivable and expressive by their awareness of architectural elements and arrangements of building components. Visual elements such as color, texture on building façade is found to be the first attraction to the user perception. Additionally, cultural belief, moral, and ethical consideration also was concerned with the agreement of user perception. However, some users did not give any reasons in supporting their agreement. The lack of awareness is found to the account of neutral responses from users or either not a great perceived. Nevertheless, researchers decided that, scored all responds to the items and used as supporting evidence as indicated by descriptive analysis in a quantitative manner to provide feedback for qualitative part.

It was found that the perceptions of users who used Safavid buildings as a daily work, were associated with the place of their work, because practically and aesthetically the characteristic of the workplaces had a direct impact on well-being and performance of user (Yavetz & Yaakov, 2005), especially in the case of Madrasa Chahar Bagh, Caravansary Abbasi. There were indications of a great positive respond among user awareness of visual and conceptual elements as a general pattern in their perception (Richter, 2008). It was important to users' judgments that the integration of architectural element's concerns aesthetically into the meaning criteria by proposing some kind of policy. The results of these items are consistent with the qualitative evidence as it was found some of the users could recognize visual elements of buildings or parts of buildings from its outline. For example, this could be seen in the case of Madrassa Chahar Bagh and Khaju Bridge with the strong definition of architectural edge, which was defined as a boundary line of space.

Identity and regionalism approach was found as the chief point among the rest of questions from users and responded by 70 percent of the users in a great detail. This perception found to have enthusiasm since it was considered to be relatively understandable. This result was reflective on the awareness, knowledge and familiarity with the meaning of the word "identity." The score of quantitative was supported by the results of qualitative comments, and improved the statement of identifying in the sense of aesthetic as a creation

of regional and national culture. For instance, the notion of the courtyard was found important to users in making their judgments of defining the place identity with culture and architectural means, which contributed to development of regional character. The integrated perception of mixed evidence about the knowledge of regionalism and identity found in many of the responses, in which the feeling of pride in their home town and public image was evident, because, image ability was possibly the most important factor in identity of place to the sense of users (Lynch, 1960).

Sounds in architecture were a unique aesthetic design feature of Safavid Architecture in the case of Khaju Bridge. Examples were given to the reflection sound of water passing through vaults at the lower level of the bridge, similar to reflection of sound underneath of the blue mosque dome (Masjed-e-Amam), and Ali Qapu palace with a high harmonically sound reflection that appears pleasant to the ears. This perception showed a considerable loyalty to the treatment of the sound in the sense of aesthetic design in Safavid Architecture. With regards to the contemporary architecture, the majority of users understood the impact of successful projects to integrate with the concept of architectural precedents in a new trend. This perception revealed the significance of architectural precedents as a prototype in designing concepts. Apparently, this finding indicates that the distinct architectural style of the Safavid Architecture as a prototype was easily perceivable, identifiable and adaptable to the various structural elements throughout the projects.

The integrated mixed perceptional evidence seemingly demonstrates two indications. The first is that, the users believed that their perceptions from their point of view, improved visualization that the contribution of aesthetic design approach of Safavid Architecture will improve all aspects of design notion and the process as a paradigm to contemporary Iranian architecture, and the second thoughts, conveying the message of issues in contemporary Iranian architecture. This perceptional consistency among users' comments show the contribution of Safavid Architecture to the development of concepts in contemporary architecture.

7. CONCLUSIONS

The visual perception of users is an important part of the overall aesthetics experience of users' of Safavid Architecture elements, such as space, form, color, harmony, rhythm, and repetition. The retrospective power of Safavid Architecture serves as a historical aesthetics precedent to the design criteria of contemporary Iranian architecture.

In conclusion, the findings of this study unfold the knowledge gaps within the body of Iranian architecture. As such, the researchers would further hypothesize based on users' perception that the use of ideas out of ancient historical buildings could result in a more satisfying architecture than those recent ones without any meaningful background.

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